**Coding Regression.**

Submit your assignments on Gradescope.
Please name your coding assignment as 'HW4.py'.
Use the provided Python template file, and complete the functions ONLY (DO NOT edit function definitions, code outside the function, or use other libraries).

**This is a coding assignment.**

**Coding: Linear regression implementation.**

In this question, we will learn how to implement a linear regression model.
linear regression train2.csv is your training data and linear regression test.csv is your test data.

Your submission should include a script that can be run seamlessly and performs all the following steps one after another. Any submission with a runtime error would result in lost points.

- Download and read the data. You may use Pandas Library and use the read csv function.
- Implement LinearRegression class. There are five functions to be implemented (See the function definition for input/output types and explanations for each function) :

**read_train_data()**
**read_test_data()**
**prepare_data()**
Data contains empty values, NaN, you need to eliminate those values. Repreparation phase.
This function return

```
return x_train, y_train, x_test, y_test
```

may use .dropna
**fit(self, X, Y):**
use the weight update rules

$$\mathbf{w} + \frac{\mu}{N}\sum_{n=1}^{N}(t - y)\, x$$

**predict()**

$$\mathbf{MSE} = \frac{1}{N}\sum_{n=1}^{N}(t^n - w^T x^n)^2$$

- Build your model and train with training set.
- Make predictions with the test set.